Formulas for Sequences and Series

Formulas for sums of special series (p. 797)	$\sum_{i=1}^{n} 1 = n$ $\sum_{i=1}^{n} i = \frac{n(n+1)}{2}$ $\sum_{i=1}^{n} i^2 = \frac{n(n+1)(2n+1)}{6}$
Explicit rule for an arithmetic sequence (p. 802)	The *n*th term of an arithmetic sequence with first term a_1 and common difference d is: $a_n = a_1 + (n - 1)d$
Sum of a finite arithmetic series (p. 804)	The sum of the first n terms of an arithmetic series is: $S_n = n\left(\frac{a_1 + a_n}{2}\right)$
Explicit rule for a geometric sequence (p. 810)	The *n*th term of a geometric sequence with first term a_1 and common ratio r is: $a_n = a_1 r^{n-1}$
Sum of a finite geometric series (p. 812)	The sum of the first n terms of a geometric series with common ratio $r \neq 1$ is: $S_n = a_1\left(\frac{1 - r^n}{1 - r}\right)$
Sum of an infinite geometric series (p. 821)	The sum of an infinite geometric series with first term a_1 and common ratio r is $S = \frac{a_1}{1 - r}$ provided $\lvert r \rvert < 1$. If $\lvert r \rvert \geq 1$, the series has no sum.
Recursive equation for an arithmetic sequence (p. 827)	$a_n = a_{n-1} + d$ where d is the common difference
Recursive equation for a geometric sequence (p. 827)	$a_n = r \cdot a_{n-1}$ where r is the common ratio

Formulas and Identities from Trigonometry

Conversion between degrees and radians (p. 860)	To rewrite a degree measure in radians, multiply by $\frac{\pi \text{ radians}}{180^\circ}$. To rewrite a radian measure in degrees, multiply by $\frac{180^\circ}{\pi \text{ radians}}$.
Definition of trigonometric functions (p. 866)	Let θ be an angle in standard position and (x, y) be any point (except the origin) on the terminal side of θ. Let $r = \sqrt{x^2 + y^2}$. $\sin \theta = \frac{y}{r}$ $\cos \theta = \frac{x}{r}$ $\tan \theta = \frac{y}{x}, x \neq 0$ $\csc \theta = \frac{r}{y}, y \neq 0$ $\sec \theta = \frac{r}{x}, x \neq 0$ $\cot \theta = \frac{x}{y}, y \neq 0$
Law of sines (p. 882)	If $\triangle ABC$ has sides of length a, b, and c, then: $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$
Area of a triangle (given two sides and the included angle) (p. 885)	If $\triangle ABC$ has sides of length a, b, and c, then its area is: $\text{Area} = \frac{1}{2}bc \sin A$ $\text{Area} = \frac{1}{2}ac \sin B$ $\text{Area} = \frac{1}{2}ab \sin C$

TABLES